

# Claims

- [c1] 1. A service station for the print head of a print module in a printing system, comprising:
- a base;
  - a first direction-changing mechanism set up on the base;
  - a first moving mechanism set up on the base and coupled to the first direction-changing mechanism;
  - a wiper set up on the first moving mechanism, wherein the print module drives the first direction-changing mechanism and, in turn, drives the first moving mechanism so that the wipers are set in motion to clear away dried ink from the print head;
  - a second direction-changing mechanism set up on the base;
  - a second moving mechanism set up on the base and coupled to the second direction-changing mechanism; and
  - at least one cap set up on the second moving mechanism, wherein the print module drives the second direction-changing mechanism and, in turn, drives the second moving mechanism so that the cap are moved to a position that seals off the print head.
- [c2] 2. The service station of claim 1, wherein the first direction-changing mechanism furthermore comprises a gear, a rod and a bumper plate, the gear is connected to the base, one end of the rod connects with the gear, the other end of the rod connects with the bumper plate and the bumper plate is positioned on the traveling path of the print module so that the rotation of the gear caused by the rotation of the rod when the print module acts on the bumper plate drives the first moving mechanism.

- [c3] 3. The service station of claim 2, wherein the base furthermore comprises a groove and the first moving mechanism furthermore comprises a wiping base, a sliding track and a gear rack, the wiper is set up on the wiping base, the sliding track and the gear rack are also set up on the wiping base with the sliding track engaged with the groove on the base, and the gear rack and the gear of the first direction-changing mechanism are coupled together so that the wiping base moves when the gear rack is driven by the gear.
- [c4] 4. The service station of claim 1, wherein the angle between the direction of movement of the print module and the direction of movement of the wiper is greater than or equal to  $70^{\circ}$ .
- [c5] 5. The service station of claim 1, wherein the second direction-changing mechanism furthermore comprises a gear, a rod and a bumper plate, the gear is connected on the base, one end of the rod connects with the gear, the other end of the rod connects with the bumper plate, the bumper plate is located in a position on the traveling path of the print module so that the rotation of the gear caused by the rotation of the rod when the print module acts on the bumper plate drives the second moving mechanism.
- [c6] 6. The service station of claim 5, wherein the base furthermore comprises a groove and the second moving mechanism furthermore comprises a capping base, a sliding track and a gear rack, the capping base has a surface with the cap set up thereon, the sliding track and the gear rack are also set up on the capping base with the sliding track

engaged with the groove on the base, the gear rack and the gear of the second direction-changing mechanism are coupled together so that the capping base moves when the gear rack is driven by the gear.

- [c7] 7. A service station for the print head of a print module in a printing system, at least comprising:
- a base;
  - a direction-changing mechanism set up on the base;
  - a moving mechanism set up on the base and coupled to the direction-changing mechanism; and
  - a wiper set up on the moving mechanism, wherein the print module drives the direction-changing mechanism and, in turn, drives the moving mechanism so that the wipers are set in motion to clear away dried ink from the print head.
- [c8] 8. The service station of claim 7, wherein the direction-changing mechanism furthermore comprises a gear, a rod and a bumper plate, the gear is connected to the base, one end of the rod connects with the gear, the other end of the rod connects with the bumper plate and the bumper plate is positioned on the traveling path of the print module so that the rotation of the gear caused by the rotation of the rod when the print module acts on the bumper plate drives the moving mechanism.
- [c9] 9. The service station of claim 8, wherein the base furthermore comprises a groove and the moving mechanism furthermore comprises a wiping base, a sliding track and a gear rack, the wiper is set up on the wiping base, the sliding track and the gear rack are also set up on the

wiping base with the sliding track engaged with the groove on the base, the gear rack and the gear of the direction-changing mechanism are coupled together so that the wiping base moves when the gear rack is driven by the gear.

[c10] 10. The service station of claim 7, wherein the angle between the direction of movement of the print module and the direction of movement of the wiper is greater than or equal to  $70^{\circ}$ .

[c11] 11. A method of cleaning the print head of a print module in a printing system, wherein the printing system comprises a direction-changing mechanism, a moving mechanism and a wiper such that the direction-changing mechanism and the moving mechanism are coupled and the wiper is connected to the moving mechanism, the method comprising the steps of:  
driving the print module to impart a rotary action to the direction-changing mechanism;  
generating a linear motion to the moving mechanism by the rotary action of the direction-changing mechanism; and  
scraping off dried ink from the print head by the motion of wiper driven by the linear motion of the moving mechanism.

[c12] 12. The method of claim 11, wherein the angle between the direction of movement of the print module and the direction of movement of the wiper is greater than or equal to  $70^{\circ}$ .

[c13] 13. A method of sealing the print head of a print module in a printing system, wherein the printing system comprises a direction-changing

mechanism, a moving mechanism and a cap with the direction-changing mechanism and the moving mechanism coupled together and the cap set up on the moving mechanism, the method comprising the steps of: driving the print module to impart a rotary action to the direction-changing mechanism; generating a linear motion to the moving mechanism by the rotary action of the direction-changing mechanism; and sealing the print head by the motion of the cap driven by the linear motion of the moving mechanism.